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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,443	01/20/2004	Larry S. Eoff	2001-IP-005267U1P1	9208
7590	10/06/2006			EXAMINER FIGUEROA, JOHN J
Robert A. Kent Halliburton Energy Services 2600 South 2nd Street Duncan, OK 73536-0440			ART UNIT 1712	PAPER NUMBER

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/760,443	EOFF ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	John J. Figueira	1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 July 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 77-88 and 91-112 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 77-88 and 91-112 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date: _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/20/04 &amp; 5/30/06</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Response to Amendment***

1. The double patenting rejection (item 12 on page 7 of the Office Action of March 23, 2006, hereinafter 'OA') has been withdrawn.
2. The double patenting rejections (items 13-17 on pages 8-10 of OA) have been withdrawn in view of the terminal disclaimer filed with Applicant's amendment/response of July 18, 2006, hereinafter 'Response'.
3. The 35 U.S.C. 102(b) rejection of claims 77-86, 88, 91-100 and 102-112 as anticipated by USPN 4,532,052 to Weaver et al., hereinafter 'Weaver', is maintained for the reasons previously made of record in item 20 on page 11 of OA.
4. The 35 U.S.C. 103(a) rejection of claims 83, 86-88, 96-98 and 100-101 as unpatentable over Weaver in view of USPN 6,358,889 B2 to Waggenpack et al., hereinafter 'Waggenpack', is maintained for the reasons previously made of record in item 22 on page 14 of OA.

### ***Response to Arguments***

#### *The Double Patenting Rejections (items 12-17 of OA)*

5. Applicant's arguments in Response traversing the nonstatutory, obviousness double patenting rejection in item 12 of OA, concerning the claims of the cited patent being drawn to nonobvious subject matter over the claims of the application, have been

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fully considered and deemed persuasive. Thus, this double patenting rejection has been withdrawn.

6. The nonstatutory, obviousness double patenting rejections in items 13-17 of OA have been overcome due to the filing of the terminal disclaimer with Response. Thus, these double patenting rejections are withdrawn.

The 35 U.S.C. 102 Rejection over Weaver (item 20 of OA)

7. Applicant's arguments in Response with respect to the 35 U.S.C. 102(b) rejection of claims 77-86, 88, 91-100 and 102-112 as anticipated by Weaver have been fully considered but are deemed unpersuasive.

Examiner notes that independent claim 77 has been amended to limit the relative permeability modifier to comprise either: a hydrophobically-modified water-soluble polymer that is "capable of" reducing permeability of the subterranean formation to an aqueous-based fluid or, a hydrophilically-modified water soluble polymer that is a reaction product of a hydrophilic polymer and a hydrophilic compound.

In response to Applicant's argument that Weaver is instead directed to a hydrophobically modified polymer that *increases* permeability of the subterranean formation to aqueous-based fluid, although the cited passage by Applicant does disclose an aspect of Weaver's method of treating a well that uses said polymer to *increase* formation permeability (col. 7, lines 43-52), Weaver further discloses other embodiments of said method involving adding the disclosed hydrophobically-modified polymer to *reduce* permeability to aqueous fluids. See, e.g., Abstract ("[t]reatment of the earthen formations with the compositions of this invention can substantially modify the

permeability and surface characteristics of the formation *to prevent or reduce the flow of aqueous fluids, especially water and formation brines through that portion of the formation.*"); Col. 7, lines 7-30 (disclosing that "[w]ithin this aspect of the invention, one particular process involves the treatment of particles packed into a formation to decrease the permeability of the formation to the flow of water or an aqueous fluid. The process comprises merely placing or contacting a liquid phase adjacent to the formation containing an effective amount of a polymer to treat at least a portion of the adjacent formation. ... The polymer is preferably a branched organic polymer ... with a backbone chain having reactive sites on which a branch chain can be or has been attached with branched chains being attached to the backbone chain .... The branched organic polymer also contains a hydrophilic portion in a concentration sufficient to produce the desired hydrophilic-hydrophobic balance within the formation and to alter the hydrophilic characteristics in the formation."); Col. 9, lines 49-64 (disclosing that "broadly speaking, one preferred application of this invention comprises one or more processes and polymer compositions for altering the surface characteristics of and/or fluid flow characteristics or a substrate or a formation which includes contacting said formation with a highly branched organic polymer which has an attaching portion and a modifying portion. ... The modifying portion of said polymer has the hydrophilic-hydrophobic balance desired to produce the desired formation surface characteristics and/or interaction with fluids such as gelling and increasing or decreasing permeability to certain fluids."); Col. 15, line 63 to col. 16, line 2 (teaching that "[g]reater efficiency in reducing water permeability is related to a higher degree of branching and with the

higher molecular weight hydrophilic branches and backbone structure. ... However, *sufficient open ended branches are necessary to effect the reduction in water production and/or mobility.*"); Procedure I (drawn to a method for evaluating the effectiveness of the branched polymer for reducing "aqueous fluid flow" through sand.); Procedure K (reciting a method of determining the branched polymer effectiveness for reducing "aqueous fluid flow" through a core.); and Tables 1-8, 10 and 13 (disclosing numerous results showing the reduction of water permeability for various branched polymers).

Consequently, Weaver discloses several embodiments of the method of treating a well bore that comprises providing a branched polymer (that can be hydrophobically-modified or hydrophilically-modified) that ("is capable of") reducing the permeability of a formation to an aqueous-base fluid albeit Weaver teaching an embodiment (cited by Applicant) that instead increases the permeability to an aqueous fluid.

Moreover, a recitation of an intended use of the claimed invention (capable of reducing surface permeability to an aqueous fluid) must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In this case, Weaver discloses the same hydrophobically modified water-soluble polymers encompassed by the instant claims. Therefore, they must inherently possess the same physical properties, such as their capability to reduce formation permeability to an aqueous-based fluid when administered into a well within, e.g., a well servicing fluid.

Applicant's arguments concerning Weaver not disclosing a hydrophilically-modified water soluble polymer that is a reaction product of a hydrophilic polymer and a hydrophilic compound are inaccurate. In support of this argument, Applicant states on page 7 in Response that:

"[r]ather, Weaver discloses that "*[t]he branched polymer can also be made by reacting or polymerizing one or more monomers onto reactive sites in or on the backbone chain to produce random length branches at various locations on the backbone polymer and/or on various branch chains.*" Weaver, col. 14, lines 68-col 15, line 5. Nowhere does Weaver disclose that the hydrophilically modified water-soluble polymer is a reaction product of a hydrophilic polymer and a hydrophilic compound. The reactions needed to form the relative permeability modifiers of the present invention *may occur prior to the addition of the relative permeability modifiers into the permeability-modifying aqueous treatment fluids of the present invention (e.g. pre-reacted embodiments), or they may occur in situ (e.g., in situ reaction embodiments)* ... This is a distinct advantage of the methods of the present invention over Weaver. Thus, Weaver does not disclose every limitation of independent claim 77." [Emphasis added by Examiner.]

Applicant is therefore arguing that although Weaver discloses preparing the polymer also by reacting or polymerizing monomers (i.e., in addition to other processes), Weaver does not expressly disclose preparing the hydrophilic polymer by the reaction product recited in the claim. However, Applicant does not traverse that Weaver does disclose examples of hydrophilically modified hydrophilic polymers useful for treating a well, and processes for preparing thereof. (See, e.g., Weaver, examples on Table 10 that were cited on page 14 of OA.) As discussed on pages 13-14 of OA, Weaver discloses examples of said hydrophilic polymers containing the same

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hydrophilic monomers (compounds) and polymers recited in, e.g., instant claims 92-97 and 103-106:

"Weaver further discloses that a preferred class of polymers for altering aqueous fluid properties, such as altering water-oil ratio in a formation process and enhancing oil production, are polymers containing *2-hydroxylpropyl N,N dialkyl-amine* as backbone units and *acrylamide* (organic acid derivative) and/or *epichlorohydrin reacted polyalkoxide* as the branch units. (Col. 42, lines 31-37) In Procedure O beginning on col. 50, line 5, Weaver discloses an example of altering the permeability of a formation surface (change in water-oil ratio) by injecting into the formation a copolymer of *polydimethylaminoethyl methacrylate* (PDMAEM having MW of 1 million) grafted with a *polyethylene oxide* branch (PEO, MW of 15,000). The resulting data showing reduction in water permeability of the formation is shown in Tables 7 and 8."

Moreover, Applicant is apparently arguing that Weaver does not teach forming the hydrophilically modified polymer by a recited process, i.e. a product-by-process claim. A product-by-process claim is not limited to the manipulations of the recited steps, only the structure implied by the steps. See MPEP 2113:

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art

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and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.)."

Finally, Applicant's arguments cited above regarding that an advantage of the method encompassed by the instant claims is that the reaction needed to form the relative permeability modifiers "**may** occur prior to the addition of [said modifiers] ... into the permeability-modifying aqueous treatment fluids of the present invention (e.g. pre-reacted embodiments), or they **may** occur *in situ* (e.g., *in situ* reaction embodiments)" are irrelevant. [Bold emphasis added by Examiner.]

Claim 77, the sole independent claim, recites injecting the aqueous treatment fluid into a formation, said "aqueous treatment fluid comprising ... a hydrophilically modified water soluble polymer [that] is a reaction product of a hydrophilic polymer and a hydrophilic compound." The independent claim thus requires that the hydrophilically modified polymer *must* be formed *prior* to its addition into the formation. Whether Weaver, or the instant application, teaches that said hydrophilic polymer *may* (or *may not*) be formed *in situ*, as opposed to prior to its addition to the formation, is of no consequence to issues of patentability distinctiveness of the instant claims over the prior art.

Moreover, the embodiment drawn to a method of acidizing comprising providing a treatment fluid containing a hydrophilic polymer and a hydrophilic compound (that is capable of reacting with said polymer) is encompassed by original claims 133-157. Group VII of the restriction requirement of the instant application includes these claims. (These claims have since been canceled). Arguments addressing the advantages of a

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non-elected invention are not relevant to the prosecution of the instant claims of the elected invention without traverse.

Thus, the claims, as amended, remain anticipated by Weaver.

The 35 U.S.C. 103 Rejection over Weaver and Waggenspack (item 22 of OA)

8. Applicant's arguments in Response regarding the 35 U.S.C. 103(a) rejection of claims 83, 86-88, 96-98 and 100-101 as unpatentable over Weaver and Waggenspack have been fully considered but are deemed unpersuasive.

Applicant's arguments concerning Weaver were addressed above in item #6. As discussed previously, Weaver does disclose using the branched polymer in a method for treating a well to reduce the formation permeability to an aqueous-based fluid. Thus, Waggenspack need not supply this limitation. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Thus, the claims, as amended, remain unpatentable over Weaver and Waggenspack.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Figueroa whose telephone number is (571) 272-8916. The examiner can normally be reached on Mon-Thurs & alt. Fri 8:00-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJF/RAG



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